

**Implementation Monitoring Module
for the
Timberland Planning and Review Components**

**California Department of Fish and Game
Northern California – North Coast Region
Interior Timberland Planning Team**

Leadperson

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Abstract

The purpose of the Interior Timberland Planning Team (Team) is to identify and evaluate biological resources at risk due to timber harvesting operations and recommend mitigation that reduces these risks to a less significant level. Monitoring of Team recommendations is a tool to measure the Team's success and to identify resource issues that need to be addressed. The Headwaters North Coast Enforcement budget change proposes to monitor implementation in 25% of the Timber Harvest Plans (THP) in Siskiyou and Trinity counties. The Team should meet this level of performance and will also conduct monitoring in Tehama, Shasta, Modoc, and Lassen counties.

Implementation monitoring has been divided into three categories: THP Recommendation Monitoring, Systematic Resource Monitoring, and Incidental Monitoring. The Team provides recommendations through the Timber Harvest Review and Timberland Planning processes. THP Recommendation Monitoring will evaluate the implementation of Team recommendations incorporated as enforceable conditions of a THP. Systematic Resource Monitoring will be conducted to provide information regarding watercourse crossings, watercourse classifications, and watercourse and lake protection zones. Incidental monitoring will be conducted to measure trends in the implementation of water drafting plans and other resource mitigation. This information will allow the Team to refine future recommendations if necessary.

The Team has developed a series of modules for resource issues identified by the Team. These modules can be viewed on the web at <http://ncncr-isb.dfg.ca.gov/itp>. This Implementation Monitoring Module has been created to outline the collection and use of data.

Goal: Conduct Implementation Monitoring for the Timberland Planning and Review Components

- 25% of the THPs within Siskiyou and Trinity Counties
- Additional monitoring in Modoc, Shasta, Lassen, and Tehama Counties

Objectives

- Monitor the implementation of Team recommendations
- Systematically evaluate watercourse crossings, watercourse classifications, and watercourse and lake protection zones
- Evaluate water drafting plans and other resource mitigation
- Collect statistically robust data
- Refine future recommendations through analysis of monitoring data
- Support adaptive management principles

Strategic Plan

Implementation monitoring for the Timberland Planning component may or may not require a visit to the THP area. For example, it may be necessary to inspect the implementation of a Programmatic Streambed Alteration Agreement, so a field visit would be scheduled. The evaluation of recommendations in a programmatic planning document may be conducted by reviewing data or annual reports supplied by a particular company. For example, the Team could review the annual report submitted by a company with a hardwoods conservation strategy (or other resource planning document).

Implementation monitoring for the Review Component will generally require a visit to the THP area. Access to a THP area can be attained in one of two ways: 1) when accompanied by a CDF Forest Practice Inspector (Inspector) during an active or completion inspection and 24-hour notice to the landowner, or 2) when verbal or written permission is granted to the Team by the landowner. In either case, the DFG monitor may be accompanied by an Inspector, the Registered Professional Forester (RPF), or the landowner.

THP RECOMMENDATION MONITORING

The Team currently tracks all THP activities in an Access database called THP track. Each month, the Team uses a “query” to identify plans that have been fully reviewed (i.e. desk review, attend the PHI and PHI report) and capture other information such as landowner name, species protection measures, PHI recommendations, completion dates, etc. A monitoring priority list is then updated and Recommendations/Protection Measures (Recommendations) submitted by the Team and accepted by the California Department of Forestry and Fire Protection (CDF) will be targeted for monitoring. Also, recommendations agreed to in a programmatic document (e.g. snag management policy, sensitive plant management plan) will also be evaluated.

When possible, the priority list will include the name of the responsible CDF inspector and the active date for each calendar year. Since the inspector name is not stored in THP track, the monitoring leadperson searches the file or contacts the appropriate staff for this information. Since the active date is also not stored in THP Track, copies of the “Active THPs” list are obtained from individual Inspectors to fill in this information. After the priority list is updated, the monitoring leadperson will schedule an implementation monitoring effort.

Examples of the types of information that will be collected specific to recommendation monitoring (THP Recommendation Monitoring field forms Appendix A) include:

- PHI or Consultation report date
- Recommendation Number
- Implementation Rating (i.e. excellent, acceptable, poor, not implemented)
- Notes
- Resolution (submitted to CDF if given a “poor” or “not implemented” rating)
- Correction Date (if a resolution was submitted to CDF)

The Implementation Rating is the most important information. A rating of either “excellent”, “acceptable”, “poor”, or “not implemented” will be assigned to each recommendation. The rating definition, reason, and DFG action follow:

Exceeds:

Definition - Implementation of the recommendation exceeded the intent.

Reason - The language of the recommendation was understood by everyone (i.e. CDF inspector, RPF, and LTO), and operations on the ground were conducted as expected.

DFG Action - The DFG may acknowledge this effort with a letter to the RPF and CDF.

Meets:

Definition – The recommendation was implemented as written.

Reason - An acceptable rating means the recommendation contained enough specifics, the RPF or LTO understood the recommendation, and implemented it as written.

DFG Action – None.

Deficient:

Definition - The recommendation was not implemented as written or intended.

Reason - The recommendation may not have contained enough specifics. The RPF or LTO may not have understood the recommendation. The RPF or LTO may have ignored the recommendation.

DFG Action - In this case the DFG monitor may propose a resolution to the CDF inspector and the RPF or LTO. The resolution may be submitted in writing or in person while conducting the inspection. The DFG monitor will then attempt to follow up on the resolution implementation with a “correction date”.

Not Implemented:

Definition – The recommendation was not implemented.

Reason – Any

DFG Action - As with the “poor” rating, the DFG monitor may propose a resolution or ask for a correction. The DFG monitor will then attempt to follow up on the resolution implementation with the “correction date.”

SYSTEMATIC RESOURCE MONITORING

CDF forest practice inspectors rigorously inspect watercourse crossings watercourse classifications, and watercourse and lake protection zones during pre-harvest, active, and completion inspections. However, since the Team submits numerous recommendations regarding these two issues, it is important to collect information regarding their installation and maintenance. This information will allow the Team to evaluate standard operating procedures and refine future recommendations.

WATERCOURSE CROSSINGS

Watercourse crossing failures often cause significant negative impacts to aquatic systems and resources. The methods used to install and maintain watercourse crossings often determines the success or failure of reducing impacts. Road dipping, rocking, and dust abatement are going through continuous experimental design. The Team needs to be informed of the associated successes and failures to refine future recommendations.

The Team will use a systematic approach in order to evaluate the positive and negative factors associated with watercourse crossing construction and maintenance practices. When an inspection is scheduled, the DFG monitor will locate all watercourse crossings on the THP map that were constructed or maintained. The monitor will then select a random or stratified subset of watercourse crossings to evaluate. The intent is to develop success and failure rates by documenting adequate and poor construction of watercourse crossings. Correlations about crossing types, status changes, operators, locations, and failure types can be calculated. Through this process, the team will be able to base its recommendations on the types of watercourse crossings that succeed and those that tend to fail.

The DFG monitor may use the Systematic Watercourse crossings field form (Appendix B) during an inspection to collect information. Examples of the types of information that will be collected specific to watercourse crossings include:

- Watercourse crossing Location ID
- Watercourse crossing Type (i.e. culvert, bridge, ford, humboldt, arizona)
- Watercourse crossing Status (i.e. new-temp., new-perm., exis.-temp, exis.-perm., abandoned)
- Type-Status Change (i.e. temp. to perm., perm. to temp, improvement, replacement)
- Section 1600 Type (e.g. 1603, programmatic 1600)
- Installed/removed adequately – yes or no? Adequate means no risks identified below are detected.
- If not, Why? There are several reasons the installation or removal of a watercourse crossing may be inadequate, with an additional category for “other”. These reasons include; high outlet, blocks fish passage, diversion potential, erosion at inlet, erosion at outlet, undersized, not aligned, basin at inlet, road approach eroded, plugged, and wrong location. Categories for poor installation/removal of watercourse crossings will be recorded and summarized.
- Notes/Photographs
- Date Corrected. The DFG monitor will attempt to follow up on any correction dates for watercourse crossings that were not installed/removed adequately.

WATERCOURSE CLASSIFICATION

Correct watercourse classification has been identified as a concern by Team. Of primary concern is prescribing scientifically sound WLPZs based on watercourse classes and site factors such as slope and aspect. A watercourse classification module has been prepared that identifies common problems leading to misclassification and examines possible solutions. The indicators used for classification are often absent because of seasonal variations (wet vs. dry years). A common theme for discussion is habitat presence and accessibility for fish, invertebrates, and aquatic plant taxa.

The Team will use a systematic approach to evaluate watercourse classifications. This is often done when DFG participates in the pre-harvest inspection, but will also be done during active and completion inspections. When an inspection is scheduled, the DFG monitor will select a random or stratified subset of watercourse segments to evaluate. The intent is to track accuracy rates for watercourse classification. The Team will use this information to streamline and improve the review process by identifying problem areas.

The DFG monitor may use the Systematic Watercourse Classification field form (Appendix C) during an inspection to collect information. Examples of the types of information that will be collected specific to watercourse classification include:

- Watercourse Segment Location ID
- Surface water present? – Yes or No
- THP watercourse classification
- Is the classification correct? – Yes or No
- If not, Why? There are five primary reasons why a watercourse may be misclassified. These include presence of: pools, macroinvertebrates, fish, sediment transport, and/or aquatic or riparian plants. Categories for misclassification will be recorded and summarized.
- Notes/Photographs
- Date Corrected. The DFG monitor will attempt to follow up on any correction dates for watercourse crossings not installed/removed adequately.

WATERCOURSE AND LAKE PROTECTION ZONE

Watercourse and Lake Protection Zones (WLPZ) are required to protect native aquatic and riparian species, and beneficial functions of riparian zones from potentially adverse and cumulative impacts associated with timber operations. The required width and retention standards are based on the combination of known classification and associated percent bank slope for each watercourse. The DFG is interested in knowing the implementation rate of prescribed WLPZ mitigation per the FPRs.

Prior to an inspection, the DFG monitor will select a random or stratified subset of WLPZ segments to evaluate. The intent is to track implementation rates of width and canopy retention. Examples of the types of information that may be collected specific to a WLPZ segment include:

- WLPZ segment ID
- Watercourse Classification
- WLPZ width
- WLPZ overstory/total canopy
- Width and retention met? (ie. exceeds, meets, short)
- Based on a visual estimate or survey?
- Estimated percent of canopy harvested.
- Estimated number of trees harvested per WLPZ segment

INCIDENTAL MONITORING

The Team is interested in collecting other types of information when opportunities exist. Incidental monitoring documents positive and negative trends in resource management during and after operations. For example, specific water drafting guidelines are used for timber operations in Threatened and Impaired watersheds. The Incidental Monitoring field form is designed to document implementation of the water drafting guidelines (Appendix D). Success and failure rates cannot be calculated, however, trend information could help the Team improve the water drafting guidelines. Incidental monitoring will also be used to assess the following resource issues:

- CESA Species
- BOF Species
- Roads and Crossings
- Watercourse Classification
- Water Drafting
- Sensitive Plants
- Terrestrial Habitats

The Incidental Monitoring form contains the following fields:

- DFG Monitor's Name
- Monitoring Date
- THP Number
- Inspection Type
- Resource Category (see above)
- Notes/Photographs
- A water drafting section based on the guidelines
- Correction date (if applicable)

INFORMATION STORAGE AND ANALYSES

The information collected by the Team will be maintained in an Access database. The database stores all information in tables that can be queried for analyses. Standard queries may be developed, and reports can be created using charts, graphs, and data to show an implementation record.

REPORTING

The collected information will be summarized through THP reporting and annual reporting. THP reporting will occur shortly after the evaluation of a THP or planning document. The monitoring leadperson will organize the field forms, maps and photos, then give copies to the responsible CDF inspector and the CDF Deputy Chief for inclusion in the administrative record. An additional copy will go in the DFG file. These reports will be made available to the pertinent RPF and landowner upon request. The annual report will be submitted to DFG and CDF senior staff, with copies to the Team and CDF inspectors. An annual report will summarize the following:

- Implementation of DFG recommendations
- Watercourse crossing implementation
- Watercourse classification
- Water drafting operations
- Trends in resource categories
- Landowner categories

Adaptive Management

Implementation monitoring will provide feedback for the Team, the timber companies, and CDF in addition to other DFG programs. The information in the annual report will identify the shortcomings and strengths of the timberland conservation program. The program can then be modified to provide conservation of natural resources while allowing timber companies to efficiently conduct their operations.

Measures of Success

Success will be measured by the extent to which the following are met:

- Proposed monitoring efforts for Siskiyou and Trinity counties are met or exceeded
- Monitoring efforts for all six counties are conducted
- Good working relationships are built and maintained with CDF, other review agencies, foresters, and companies
- Implementation monitoring is conducted for each Review or Timberland Planning module

Appendix A– Recommendation Monitoring Field Form

Appendix B – Systematic Watercourse crossing Monitoring Field Form

Appendix C – Systematic Watercourse Classification Monitoring Field Form

Appendix D – Incidental Monitoring Field Form

Appendix A
Department of Fish and Game
THP Recommendation Monitoring
NC-NCR – Redding

DFG Monitor: _____ Date: _____

THP # / Name: _____

Inspection Type: ☐ **Pre-Harvest** ☐ **Active** ☐ **Completion**

CDF Inspector: _____ Inspector Present: Yes No

1. Recommendation/Protection Measure ID# _____
2. Implementation Rating ☐ Excellent ☐ Acceptable ☐ Poor ☐ Not Implemented
3. Notes, Explanation, Photos

4. Resolution/Solution

5. Date Corrected _____
-

1. Recommendation/Protection Measure ID# _____
2. Implementation Rating ☐ Excellent ☐ Acceptable ☐ Poor ☐ Not Implemented
3. Notes, Explanation, Photos

4. Resolution/Solution

5. Date Corrected _____

Appendix B
Department of Fish and Game
Systematic Resource Monitoring
Watercourse crossings
NC-NCR – Redding

DFG Monitor: _____ Date: _____

THP # / Name: _____

Inspection Type: ☐ Pre-Harvest ☐ Active ☐ Completion

CDF Inspector: _____

Inspector Present: Yes No

1. Watercourse crossing Location ID _____

TYPE	STATUS	TYPE/STATUS CHANGE
<input type="checkbox"/> CULVERT	<input type="checkbox"/> NEW-TEMPORARY	<input type="checkbox"/> TEMP TO PERM
<input type="checkbox"/> BRIDGE	<input type="checkbox"/> NEW-PERMANENT	<input type="checkbox"/> PERM TO TEMP
<input type="checkbox"/> FORD	<input type="checkbox"/> EXISTING-TEMPORARY	<input type="checkbox"/> IMPROVEMENT
<input type="checkbox"/> HUMBOLDT/SPITTLER	<input type="checkbox"/> EXISTING-PERMANENT	<input type="checkbox"/> REPLACEMENT
<input type="checkbox"/> ARIZONA	<input type="checkbox"/> ABANDONED	<input type="checkbox"/> NONE

2. SECTION 1600 TYPE _____

3. Was the crossing installed/removed adequately? ☐ Yes ☐ No ☐ N/A

4. PROBLEMS

<input type="checkbox"/> High Outlet	<input type="checkbox"/> Blocks Fish Passage	<input type="checkbox"/> Diversion Potential	<input type="checkbox"/> Erosion Potential
<input type="checkbox"/> Undersized	<input type="checkbox"/> Wrong Location	<input type="checkbox"/> Ponding	<input type="checkbox"/> Not Aligned
<input type="checkbox"/> Corroded CMP	<input type="checkbox"/> Erosion at inlet	<input type="checkbox"/> Erosion at outlet	<input type="checkbox"/> Plugged
<input type="checkbox"/> Road approach erosion	<input type="checkbox"/> Other		

5. Notes (attach photographs).

6. Date Corrected _____

Appendix C
Department of Fish and Game
Systematic Resource Monitoring
Watercourse Classification
NC-NCR – Redding

DFG Monitor: _____ Date: _____

THP # / Name: _____

Inspection Type: ☐ **Pre-Harvest** ☐ **Active** ☐ **Completion**

CDF Inspector: _____ Inspector Present: Yes No

1. Watercourse segment location ID _____
2. Surface Water Present? ☐ Yes ☐ No
3. THP Watercourse Classification _____
4. Is the classification correct? ☐ Yes ☐ No
5. If Not Why?

- | | | |
|---|---|---------------------------------------|
| <input type="checkbox"/> Water Pools | <input type="checkbox"/> Invertebrates Present | <input type="checkbox"/> Fish Present |
| <input type="checkbox"/> Sediment Transport | <input type="checkbox"/> Aquatic or Riparian Plants Present | |

6. Notes (attach photographs): _____

7. Date Corrected: _____

1. Watercourse segment location ID _____
2. Surface Water Present? ☐ Yes ☐ No
3. THP Watercourse Classification _____
4. Is the classification correct? ☐ Yes ☐ No
5. If Not, Why?

- | | | |
|---|---|---------------------------------------|
| <input type="checkbox"/> Water Pools | <input type="checkbox"/> Invertebrates Present | <input type="checkbox"/> Fish Present |
| <input type="checkbox"/> Sediment Transport | <input type="checkbox"/> Aquatic or Riparian Plants Present | |

6. Notes (attach photographs): _____

7. Date Corrected: _____

Appendix D
Department of Fish and Game
Incidental Monitoring
NC-NCR – Redding

DFG Monitor: _____ Date: _____
THP # / Name: _____
CDF Inspector: _____ Inspector Present: Yes No

Inspection Type

- ☐ Pre-Harvest
- ☐ Active
- ☐ Completion

Resource Category

- ☐ CESA Species
- ☐ BOF Species
- ☐ Roads and Crossings
- ☐ Watercourse Classification
- ☐ Water Drafting
- ☐ Sensitive Plants
- ☐ Terrestrial Habitats

Notes:

WATER DRAFTING

1. Drafting Site Location ID _____

2. Screen Type: ☐ Perforated Plate ☐ Screen

3. Fish Observed: ☐ Yes ☐ No

4. CFS: ☐ Measured ☐ Estimated ☐ Not Estimated

5. Approximate CFS _____

6. Drafting Plan Adequate ☐ Yes ☐ No

7. If Not, Why?

- ☐ Openings in perforated plate or wire mesh screen exceed 2.38 mm
- ☐ Slot openings in wedge wire screen exceed 1.75 mm
- ☐ The approach velocity exceeds 0.33 feet/second
- ☐ Flow in the source stream is not at least 2 cfs
- ☐ Reduction in pool volume exceeds 10%
- ☐ Diversion rate exceeds 350 gpm, or 10% of surface flow
- ☐ Screen is more than 10% obstructed with debris
- ☐ Screen surface is not at least 2.33 ft²
- ☐ Other _____

8. Notes

9. Date Corrected _____